ForesTalk

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In This Issue

THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

DEPARTMENT OF LANDS, FORESTS AND WATER RESOURCES

THE HONOURABLE ROBERT WILLIAMS
MINISTER

JOHN S. STOKES
DEPUTY MINISTER OF FORESTS

E. L. YOUNG
CHIEF FORESTER

A. G. DAGG
EDITOR

POLICY STATEMENT

The objective of the British Columbia Forest Service, as the forest administrative agency for the government of British Columbia, is to develop and enforce policies which will ensure for all time the proper balance of timber supply, forage production, forest recreation, wildlife protection and environmental preservation on the Crown forest lands of the province.

STAFF PHOTOGRAPHERS
Barbara Davies, Peter Robin,
J. W. Thomson and R. J. Challenger

COVER PHOTO

Yellow arum (skunk cabbage) is found in most swampy areas of B.C. and is most noticeable in March and April when soft yellow sheaths are in bloom and before plants have come into leaf.

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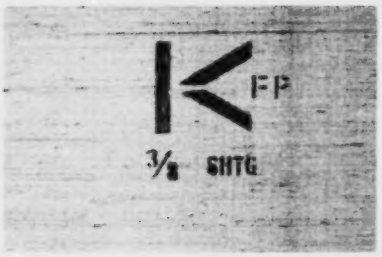
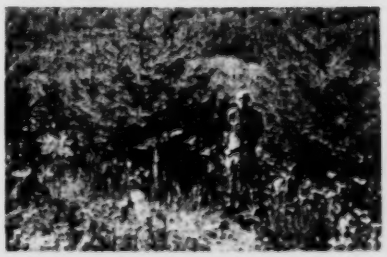


Kootenay Forest Products

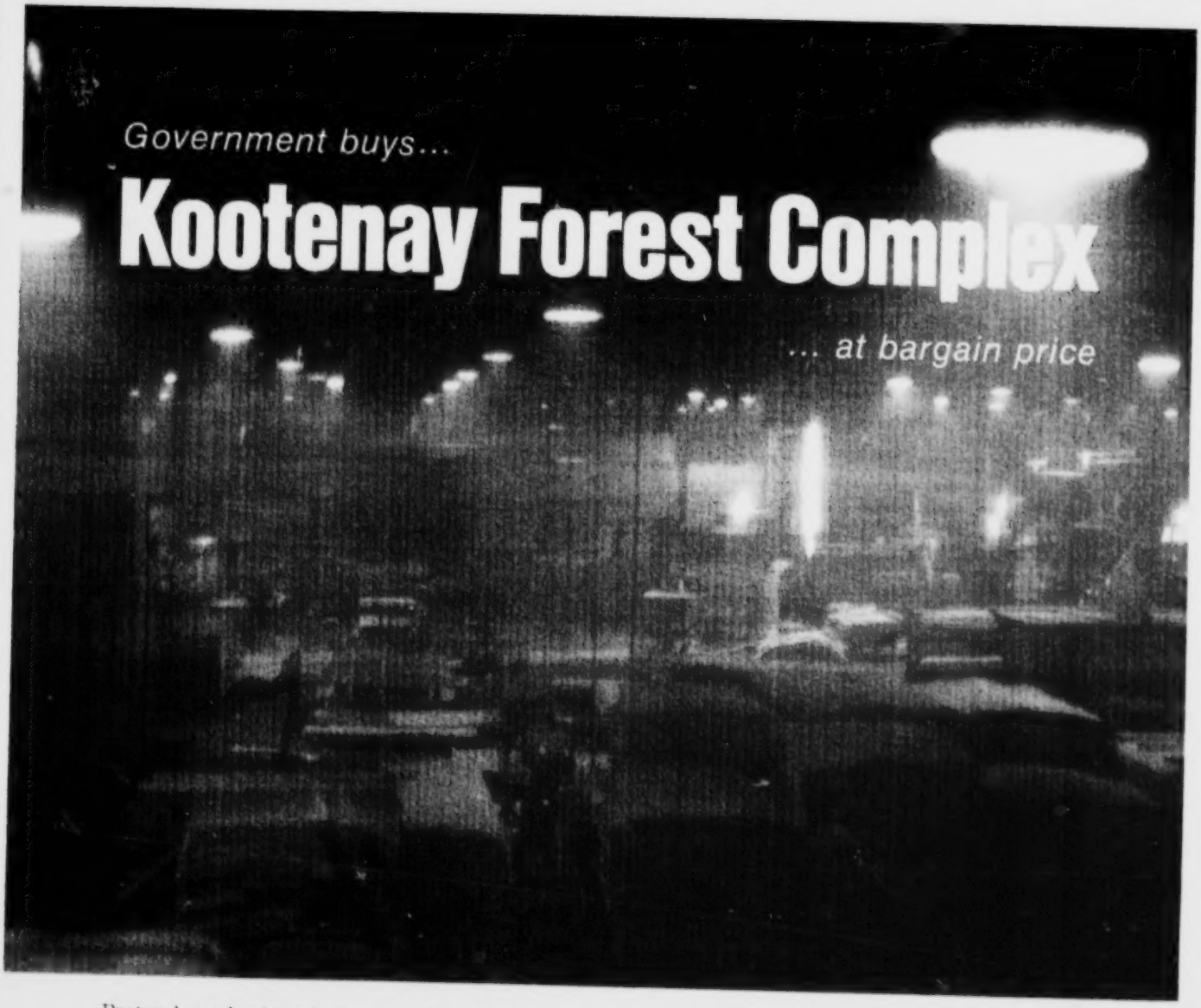
Old Forest Tenures

Forest Museum

Rangeland Management



Good Seed Pays



Government buys...

Kootenay Forest Complex

... at bargain price

Protocol people of the business world would have expressed it more delicately, but what it boils down to is this: it was a helluva good deal.

And better yet, it was a good deal for the people of British Columbia.

It became official on February 6 when Resources Minister Robert Williams announced the provincial government had purchased the entire holdings of Kootenay Forest Products Ltd., of Nelson, from Eddy Match Company, Ltd., for nine million dollars.

30 Miles of Waterfront

And just what did British Columbians get for their money?

They got a large sawmill, and a plywood plant.

And they got something a lot more precious—more than 42,000 acres of prime timber and recreation land, formerly owned outright by the timber firm. The property includes about 30 miles of choice waterfront on Kootenay Lake, Duncan Lake, at the mouth of the fast-running Lardeau River, and at the southern tip of very appropriately named Trout Lake.

Let's take a closer look at that property in terms of its value. Real estate people in the Nelson area indicate that a 100-foot river or lakefront lot sells for anywhere between $50 to $100 a foot (and in some cases much more). Take 30 miles of such sought-after property at the low rate of $50 a foot and you have waterfrontage land worth around $7,920,000.

The same realtors report that "strictly wilderness land"—no improvements, not even road access—is selling for around $300 an acre. At that rate, a "round" 30,000 acres is worth about $12,000,000.

That's nearly $20,000,000 in real estate alone, if you want to link it with current property values.

Many Other Values

But there are other distinct values upon which it is difficult, if not impossible, to place a firm monetary tag. The lake and river regions, for instance, are literally scenic wonders, and large segments are major fish and wildlife areas. Some of the fishery spawning grounds have been valued at $200 a square yard.

Recreational values of the overall region are almost limitless, and in this respect, variety is the keyword. There are valleys and mountains, lakes and rivers, and large portions are renowned for their wildlife features—particularly deer, elk and black bear.

Enhancing the recreational aspect is the fact that already there is good access throughout many parts of the region in the form of roads and trails. As plans for the area unfold some existing roads will be improved and new ones will be built.

Land-use officials who have conducted an intensive "inventory" study of the region report forestry values are "extremely high", and timber harvesting will continue, but in keeping with the sustained yield principle—in which the annual harvest will not exceed new growth—and all logging will be conducted under strict management and supervision.

The entire area, because of its unique and extremely varied topography, has become host to a series of resource management problems. Now, hopefully, many of those problems can be solved.

"Direct Management" Now

"We can now depend on direct management," observes Resources Minister Williams, who also sees "some re-allocation of land holdings as a direct means of helping to resolve resource conflicts and environmental concerns."

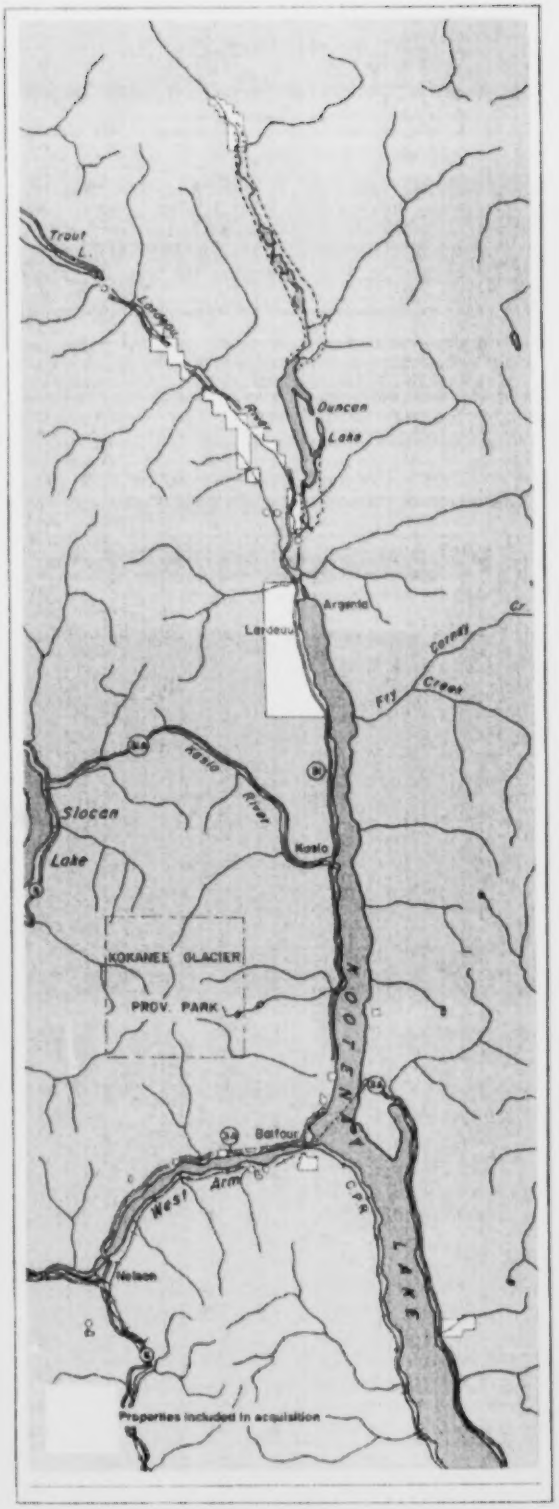
Although detailed plans for the 42,000-plus acres are far from being finalized, already there is a firm proposal to establish a 16-acre seedling nursery for the B.C. Forest Service at the small community of Harrop on Kootenay Lake. Reforestation officials have described the location as "ideal". (It is interesting to note that recently the proposed nursery site land was offered for sale by the former owners at $2,200 per acre.)

Other tentative plans for the region include green belt areas, special fisheries undertakings along portions of the Lardeau River, the establishment of regional and community parks, and possibly a new provincial park at Gerrard in the Lardeau Valley.

Let's look at the industrial plant aspect involved in the deal. The sawmill last year produced 40 million board feet of lumber. The plywood plant turned out 85 million square feet of the popular building material; and pulp chip production was about 26,300 units. (A unit is 200 cubic feet of chips).

Employment Base

The mills provide year-round employment for



more than 500 persons and serve as a strong employment base for the busy city of Nelson on the west arm of Kootenay Lake. It is quite likely the mill complex will be expanded to provide additional jobs; and also move into higher levels in the finishing of products, with resultant higher returns.

Last year the firm recorded profits of $1.5 million, and 1974 sales are expected to reach the $18 million mark. But although increased returns are predicted, the government doesn't plan to concentrate only on making a big profit from the operation. Instead, it is planned to have proper business management practices balanced against ecological and environmental concerns.

Reaction to the government's purchase of the firm was immediate in Nelson. The mayor of the city, J. T. (Tex) Mowatt, was pleased. He said it was a "step in the right direction" and noted that since the former owners started attempts some time ago to sell Kootenay Forest Products Ltd. there had been considerable uncertainty in the community, and even fears the whole operation might be shut down.

"Now", he says, "there will be stability at the mills . . . and those who work there will know where they stand."

A "Remoteness" Problem

Williams Crooks, manager of the firm, also saw some immediate advantages to the sale. He referred to the former owners as "a good employer", adding "but it had problems understanding the local operation because of its remoteness." (All other Eddy Match operations are based in Eastern Canada.)

The British Columbia government purchased the firm and all its holdings through its crown corporation B.C. Cellulose Co. which also controls Canadian Cellulose Co. Ltd. (Cancel) operations at Prince Rupert and Castlegar.

Last year Eddy Match Co., Ltd. was prepared to sell Kootenay Forest Products Ltd. to Crestbrook Forest Industries Ltd. of Cranbrook for $8.9 million, but the B.C. government prohibited the transaction. Such a sale would have entrusted the future of the region's rich and delicate environment even further to non-Canadian interests and placed the resources in a relatively few hands. (The Crestbrook firm is controlled by Japanese interests.)

The extra $100,000 paid by the government took into account money spent by KFP on improvements to its plants over the past year, and the increased value of its timber holdings.

Now the people of British Columbia own still more of their province — thousands of acres with a multitude of benefits and a big industrial complex included. All for a price far below actual values.

As any businessman would admit, it was a good deal. ▲ By R.W.

Young woman patching plywood.

Heart of complex is sawmill at Nelson.

Lardeau River Valley with Trout Lake in background.

APPRAISED TIMBER ROYALTIES ADVOCATED

by Task Force

Task Force Chairman, Dr. Peter H. Pearse

Old stand of giant Douglas fir on Vancouver Island.

The landlord has been concerned about the fairness or equitableness of the rents charged to some of his oldest tenants. But before adjusting them, he engaged a team of independent experts to review the situation impartially and recommend any changes which became logical in the light of all evidence.

The study has been completed. Findings and recommendations are now in the hands of the landlord, and some adjustments in rent are probable.

The landlord in this case is the British Columbia government, or more specifically, Resources Minister Robert Williams.

The tenants are the holders of various old timber leases, licences and berths by which they acquired rights to harvest some of the finest forests in the province. In virtually all cases, the tenants are logging companies, some of which hold several hundred of the 2600-odd plots of Crown forest land which are generally referred to as "old temporary tenures".

To conduct a full scale review of provincial forest policies and to determine the fairness of the payments charged for these lands and for the timber removed from them - fairness to both the tenants and the landlord, who really represents the people of B.C. - a special three-man task force of highly qualified professional foresters was assembled in mid-January.

Heading the team and without any vested interest in either the landlord or the tenants is Doctor Peter Pearse, resource economist of U.B.C. He has performed in a similar capacity for both the federal and provincial governments on a variety of natural resource issues and has earned a solid reputation for his objective approach to complex problems.

Other members of the team are Arvid V. (Bill) Backman, Director of Forestry and Planning for Canadian Cellulose Co. Ltd., and E.L. (Ted) Young, now Chief Forester of the B.C. Forest Service, Victoria.

Along with his 25 years in the Forest Service, Mr. Young has six years of experience in the forest industry of which more than three years were as resident forester of what is now MacMillan Bloedel's Franklin River Logging Division on Vancouver Island. Within the service he has held top ranking positions in three forest districts as well as in Victoria before assuming his present role last month.

Bill Backman, a forest engineer, has served the B.C. forest industry for nearly 40 years and developed a thorough appreciation of the operating and administrative problems involved. As a logging engineer and division manager, he worked for MacMillan Bloedel Ltd. until 1956 when he joined Columbia Cellulose Co. Ltd. (now Canadian Cellulose). There he has been involved in timber development, forestry, logging methods and other tasks.

Clearly, this trio holds an imposing list of credentials and all concerned should be able to rely on an accurate and rational report.

Major reviews of provincial forest policies were conducted by Royal Commissions in 1910, 1945 and 1956, but because of the continual changes which characterize forest management and the forestry industry, the last report advocated additional studies every 10 years. Despite enormous developments since 1956, no such action has been taken until now.

Specific responsibilities assigned to the task force were:

"*Formulate recommendations for changes in the arrangements governing (forest use and management) with a view toward protecting the public interest in the Crown forest resources, and in particular toward ensuring:*
that the full potential contribution of the public forests to the economic and social welfare of British Columbians is realized, recognizing the diverse commercial wood products, recreation and wildlife benefits, domestic stock grazing and environmental values of forest resources.
that the payments made for Crown timber reflect the full value of the resources made available for harvesting, after fair and reasonable allowance for harvesting costs, forestry and development costs and profits; and that the marketing arrangements for timber products permit their full value to be realized.
that the health and vigor of the forest industry in the Province is maintained.
that good forest management in terms of harvesting practices, protection and conservation, reforestation and silviculture is provided for."

As a first priority, the task force was asked to examine the terms or conditions by which the old temporary tenures were issued and are now held, and to make recommendations for improving arrangements governing charges for timber and harvesting rights on them.

Space limitations preclude the inclusion here of the full rationale leading to the findings and recommendations of the task force but a brief description and history of the old tenures are of interest and essential to appreciate the current situation.

History of Old Tenures

Earliest disposal of land by the Crown Colonies of Vancouver Island and British Columbia as they then existed was in 1858 when land and all timber on it was sold outright for 10 shillings an acre. This was soon considered excessive and demand was so limited that the price was reduced to four shillings and two pence an acre in 1861 and changed to $1.00 per acre in 1870.

By 1884 purchase prices rose to $2.50 per acre and timber, once considered a nuisance, had assumed increased importance. From 1887 on, new landowners had to obtain authorization to log their properties and they were required to pay the Crown a royalty on timber cut off their lands.

The extra value of "timber land" was further recognized in 1891 and more clearly defined in 1896 when sale of such Crown land was prohibited. However, the law was loosely enforced and it was still possible for "timber lands" to pass into private ownership until after the formation of the Forest Service in 1912.

Even then and until 1947, "logged-off and reforested lands" did not come within the classification of "timber lands" and could still be purchased. Nevertheless, the early recognition of the added value of forest land to the Crown and the steps taken to retain control of it were largely successful and B.C. now enjoys a most favourable position in this regard.

Perhaps unfortunately, the degree of control retained varies widely and some of the earliest tenures which were intended to remain valid for a few years only are still in effect.

Timber Leases

By the Land Ordinance of 1865, Timber Leases were granted to those who were actually engaged in "cutting spars, timber or lumber" in return for "such rent, terms and provisions" as determined by the Governor.

This was a precedent for other forms of leasing and licensing forest land for cutting timber without granting the land itself but evidence indicates that the major objective was to obtain more revenue from the forests than could be gained at that time by the outright sale of the land.

The terms of Timber Leases were changed frequently. Initial property rental fees of five to 10 cents per acre annually were raised to 50 cents in 1965 where they remain today. Royalties on timber cut were first introduced for these leases in 1888 and set at 50 cents per thousand board feet. They have been adjusted upward on several occasions but not since 1968 when the government of the day fixed new rates ranging from $1.10 to $5.10 per 100 cubic feet depending on species and grade.

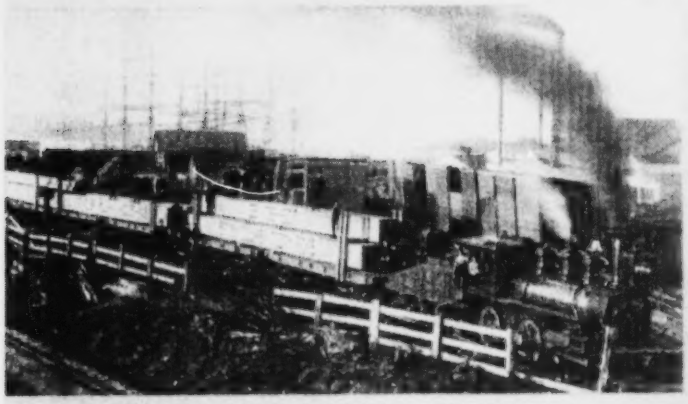
At first, no limit was set as to the duration of tenancy except that the leased lands were to return to the Crown when the merchantable timber had been removed from them. But in 1910 all existing leases were made renewable for periods of 21 years and in 1973 there were still 95 in good standing covering some 107,084 acres. The oldest of these was issued in 1892 . . . none after 1907.

Timber Licences

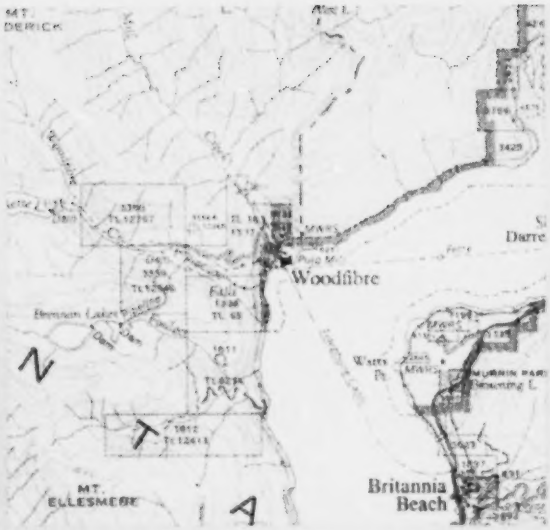
By the Timber Act of 1884, Timber Licences were first issued authorizing the holders to remove merchantable timber from Crown lands. Each licence was limited to 1000 acres, was for four years and fees were $10 annually. They were limited to one per person, were not transferable and their primary purpose was to raise revenue for the Crown.

The essential difference between them and Timber Leases was that the latter were designed to meet the needs of mill owners while timber licences were introduced to serve the requirements of the large number of independent loggers.

PHOTOGRAPHS accompanying this article have limited relationship to it but are of historical interest.



British Columbia "toothpicks" (36" x 36" x 60') ready for shipment at Vancouver in 1890.



Most old timber leases and timber licences were issued for prime forest land readily accessible to water transportation.

In 1888, these Timber Licences became known as "Special Timber Licences", were issued for one year only and made renewable. The annual fee was increased to $50 and royalties of 20 cents per thousand board feet plus 15 cents per tree cut, first imposed in 1887, were also increased.

By 1901 legislation, each licensee was allowed two Timber Licences but the area of each was reduced to 640 acres and fees were increased to $100 each. Soon after, annual fees rose to $140 and royalty to 50 cents per thousand.

In 1905, these "Special Timber Licences" were made transferable and the limit was removed on the number an individual could acquire. Just a few years later after a rather dramatic period of speculative timber staking, 15,109 such licences were in effect.

Issue of these licences was suspended in 1907 and legislation pertaining to them remained unchanged until 1965 when annual renewal became subject to approval by the Minister of Resources and licensees renewing were obligated to perform certain forestry practices which had not been required before.

In 1973 there were still 2255 Special Timber Licences in effect covering 1,140,334 acres of Crown land.

Timber Berths

When B.C. entered Confederation in 1871, one of the terms required that the Dominion construct or have constructed a railway connecting the new province with the rest of Canada.

In return the province agreed to transfer to the Dominion a belt of land extending 20 miles on each side of the proposed railway. This of course became the Canadian Pacific Railway mainline and the area within the belt totalled nearly 11 million acres.

In 1930 the belt was returned to B.C. but in the interval, a number of licences had been issued awarding timber-cutting rights on forest lands within it. These tenures, named "timber berths", were and still are subject to rental fees, forest protection tax and royalties on timber removed. On completion of logging the lands revert to the Crown.

They were issued between 1883 and 1929 for a one-year term. Each berth was renewable on payment of annual rental and provided sufficient merchantable timber remained to make it commercially valuable.

In 1973 there were still 113 Timber Berths covering 179,122 acres which had not yet reverted to the Crown.

Pulp Leases

Pulp Leases were made available between 1901 and 1903 to the owners of pulp mills on the basis of one square mile of forest land for each ton of daily pulp capacity in the mill. These tenures were issued for 21 years and were renewable.

They were intended to induce pulp mill development and to provide pulp timber of a quality or size less valuable than saw-timber, so the rentals and royalties payable were at first less than for other temporary tenures.

The area alienated by Pulp Leases was 354, 399 acres but unlike other tenures, very little of it has reverted to the Crown and in 1973, 301,411 acres were still held.

Pulp Licences

"Pulp Licence" was the name given to Special Timber Licences which were converted between 1919 and 1921 so that their holders could get advantages similar to those with Pulp Leases. Essentially they were acquired and held as timber reserves by large pulp and paper companies.

In 1973 there were still 103,182 acres held under this tenure.

Present Situation

Nearly half of the 2673 old tenures still in good standing are now included within Tree Farm Licences, (T.F.L.s), a more recent form of tenure, where they are subject to most, though not all, present day forestry requirements and revenue payments.

However, the remainder enjoy much greater freedom from control in terms of cutting practices, utilization an reforestation requirements. None, either within or out of T.F.L.s, pays appraised stumpage rates on timber removed. They do pay fixed royalties which, under the fluctuating market and economic conditions are usually considerably less than stumpage.

In this regard it is perhaps significant that although 15.62 percent of the timber cut in B.C. in 1972 was removed from the old tenures, only 2.3 percent of the total royalty and stumpage revenue was derived from them.

RECOMMENDATIONS

Royalties

The task force's first recommendation was "that the existing schedule of fixed royalties, as it applies to timber

Ocean-going sailing ships await cargo at Victoria Lumber and Manufacturing Co's mill at Chemainus in early 1900s.

harvested on old temporary tenures, be abolished; and that royalties be determined instead by forest appraisals such as now used in establishing the price for other Crown timber".

In support of this proposal, the report stated that even the refined fixed royalty system implied that all timber in a given category was of equal value, encouraged loggers to take out only the best timber, and failed to recognize that timber in different locations varied in value because of differences in logging and transportation costs.

Also, "because timber values and harvesting costs change constantly and often sharply, fixed royalties cannot be expected to appropriate a constant share of the net resource value unless they are continuously adjusted." On the other hand, appraised royalties rise and fall with changing market conditions and costs.

For these and other reasons, "the Task Force has concluded that forest appraisals offer a far more equitable and consistent means of ascribing a value to Crown Timber and determining the public's equity in it."

Forest Land Tax

The second recommendation was "that the forest land tax be abolished at the end of the current assessment year, Dec. 31st".

The Taxation Act of B. C. as amended in 1953 provided that timber leases, licences and berths which had not reverted to the Crown would be classified as "forest land" for property taxation purposes and be subject to an annual tax of one percent of their assessed value.

In reaching its decision on this item, the task force observed, "It is apparent that a major justification of this tax was that it would partly compensate for the preferential treatment of timber in old temporary tenures under fixed royalties. Insofar as we have recommended that this difference be eliminated by basing the royalty payments . . . on the same footing as the payments for other Crown timber, we recommend also that this tax be abolished."

The Logging Tax

The third recommendation was that the burden on the forest industry of the special tax on logging profits be eliminated. This would be done by reducing the tax rate from 15 to 10 percent and increasing the allowed credit against provincial income tax to one third of the logging tax paid. Since the other two thirds is allowed as a credit against federal income tax, the burden of the tax would be eliminated, though the province would still benefit from the transfer of tax revenues from the federal treasury that results from the credit arrangements.

It was also recommended that profits for logging tax calculations be defined in the same way as profits for income tax purposes, thus eliminating double accounting. The result of such changes would be that the forest industry would bear the same taxes on profits as other industries.

Economic Impacts

The Task Force did not set out to generate any predetermined level of public revenue; rather it saw its job as ensuring that "the payments made for Crown timber reflect the full value of the resources made available for harvesting, after fair and reasonable allowance for harvesting costs, forestry and development costs, and profits" as instructed in their terms of reference.

Nevertheless it appears probable that if all three major recommendations are implemented, there will be a considerable net gain to the Crown in years of normal or above average economic conditions.

By using some basic assumptions and if the proposed appraisal system had been employed in 1973, royalties would have exceeded the actual level by an estimated $49 million.

But because royalties are deducted from taxable income, some of this gain would be offset in lower income tax yields. The Task Force estimated that if logging profits were $200 million, the net gain to the province from adopting all the recommendations would be $31 million; federal government revenues would decline by $16 million; and the industry would end up paying $15 million more to governments in royalties and taxes.

Implementation

The review requested by the landlord is now in his hands, but at the time of writing he had not had time to assess it fully. He could accept all, some or none of the proposals.

Adoption of them would require amendments to the Forest Act, the Taxation Act and the Logging Tax Act. Without intending to second guess the landlord, some legislation could be introduced during the current session.

British Columbia's Forest Museum

By Ray Wormald

A century ago life was pretty rough and sweat-soaked for the British Columbia logger.

His tools were an axe, a long cross-cut saw and some steel wedges. Teams of oxen or horses dragged his precious log harvest away from the felling place—slow, tedious and back-breaking work for both man and beast.

Then came the steam era and the sullen, snorting animals' role in the logging industry came to an end. Steel rails snaked their way into the forests, and it was the fiery, steam-belching "iron horses" that hauled out the freshly cut timber.

"Locies Disappeared

But the "locies" too had their day. They gave way to today's gasoline and diesel-powered trucks —huge and powerful machines that can cope with slopes and climbs completely impossible for the locomotives.

By the early 1950's practically everything about the steam age in the forests was fast disappearing. Thousands of loggers saw the end of one era and the start of another. And no one, including the industry at large, cared or gave a thought to preserving the old equipment.

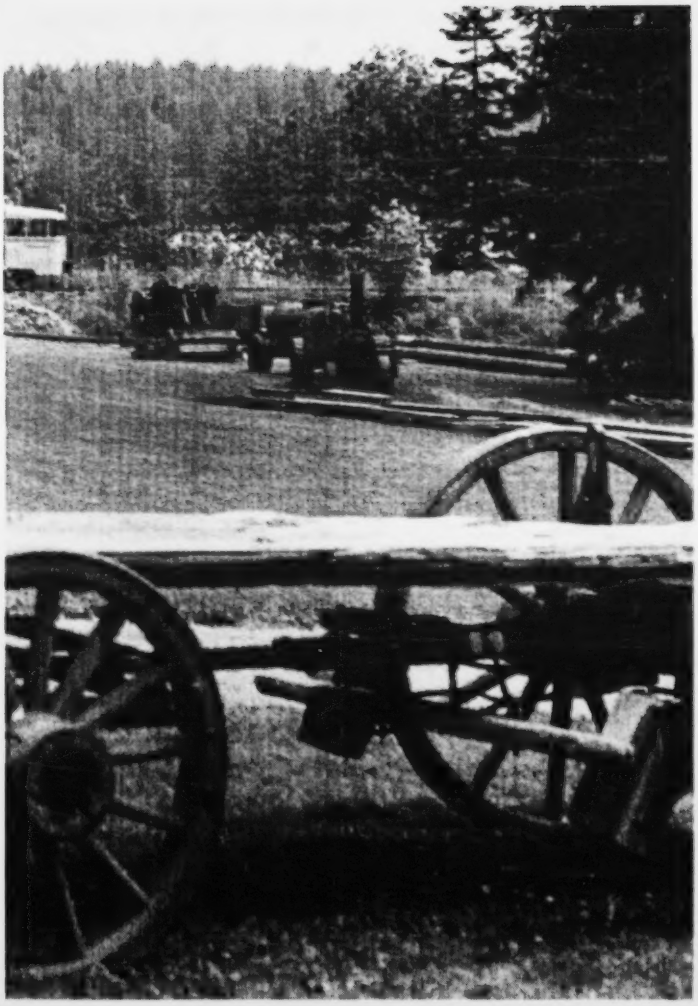
No one, that is, except one logger in the broad, timber-covered Cowichan Valley. For Gerald E. Wellburn, the puffing steam locomotives, the hand-pump cars, donkey engines and all other related equipment held a strong fascination. Some day, he assumed correctly, many people would share that fascination with him.

"Gerry" Wellburn started his collection nearly 30 years ago. Some pieces came from his own logging operation; and from any place he could obtain them he gathered everything from steam locomotives to axes. He knocked on industry's door and asked them for their old relics—donkey engines, hand carts, gasoline-driven speeders (affectionally known as "crummies" by loggers of bygone days) and hand operated jacks. Anything that smacked of pre-diesel days. Some things he purchased.

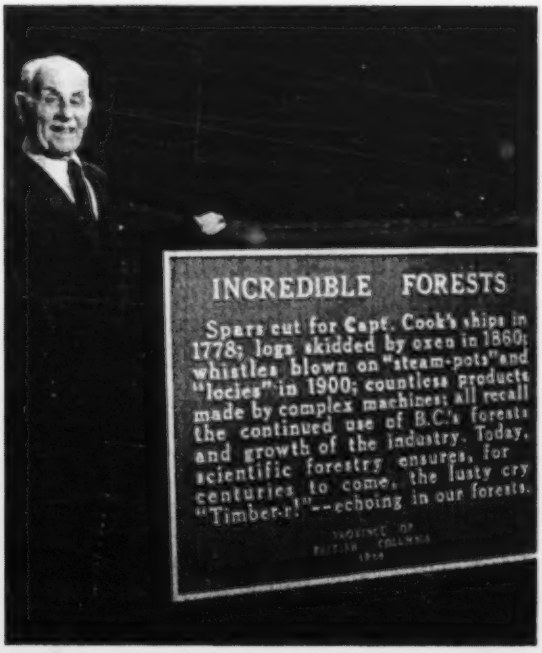
"Glorious Junkyard"

All the hardware wound up on the 13 acres which surrounded Gerry's home at Deerholme, on the outskirts of Duncan, some 40 miles north of Victoria.

"I guess my wife was right," the veteran logger



Museum founder, Gerald E. Wellburn.


INCREDIBLE FORESTS
Spars cut for Capt. Cook's ships in 1778; logs skidded by oxen in 1860; whistles blown on "steam-pots" and "locies" in 1900; countless products made by complex machines; all recall the continued use of B.C.'s forests and growth of the industry. Today, scientific forestry ensures, for centuries to come, the lusty cry "Timber-r!"---echoing in our forests.

mused, "it did look like a grand and glorious junkyard for quite a while."

To this day, however, he defends himself by explaining that "from the very beginning I was always very selective in acquiring items for the collection."

Practically all the antique equipment came from the Cowichan Valley, where logging commenced in the 1860's and is still a thriving industry.

As the search continued and his collection grew to significant proportions, Gerry set out to arrange the material "in some sort of order." He got old machinery running again, and started a maintenance program.

Slowly but surely there developed a public interest and curiosity. People heard about the unique collection and started visiting the Wellburn home. Anxious to share his show with everyone, Gerry approached various agencies, seeking support and a good location for the exhibits.

Community Effort

The idea captured the collective imagination of the city of Duncan, the nearby municipality of North Cowichan and the village of Lake Cowichan. Between them they formed the Cowichan Valley Forest Museum Society—a non-profit community organization. In 1964 enough money was raised to purchase 15 acres about a mile north of Duncan—between the well-travelled Island Highway and scenic Somenos Lake. The Forest Museum was officially opened early in 1965.

Soon after an additional 10 acres were acquired; and in 1968 the society, with help from the B.C. government, added another 15 acres to the museum complex. Total: 40 acres.

Late last year the museum became the property of the people of British Columbia. It was acquired by the Provincial Government, re-named the British Columbia Forest Museum, and is now being managed by the B.C. Forest Museum Society under the Historic Sites Advisory Board.

To date, more than a quarter of a million people have visited and enjoyed the museum. And they have come from as far away as Japan, Holland, Switzerland, Brazil and Germany.

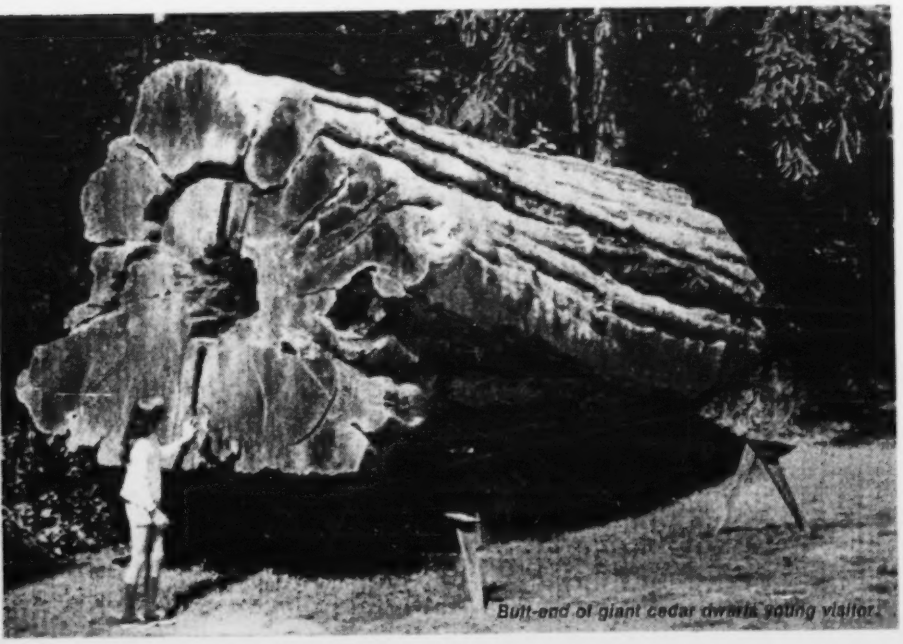
"Actually," explains museum manager Patrick (Pat) Phillips, "it's more than just a museum . . . it's an educational facility." Last spring more than 6,000 students, in organized classes, visited the grounds.

The museum's many features include ancient logging steam locomotives which carry fascinated passengers over about a mile-and-a-half of narrow-gauge railway track through heavily wooded areas and over a long lakeshore trestle; a magnificent variety of rolling stock used by the logging industry decades ago; and a log museum which houses hundreds of exhibits, irreplaceable historic photographs and displays.

The attractive log structure was built with funds donated by pioneer B.C. lumberman H. R. MacMillan. It stands on the site of the area's first combination church, town hall and school . . . built in 1863.

"Foresters' Walk"

A unique "Foresters' Walk" takes the visitor through the peace, beauty and tranquility of a forest in which there are 25 different species of trees. In one corner there are Douglas firs 350 years old. There are three operating locomotives —a 12-ton unit built around 1900 that bears the name "Suzie"; an 18-ton engine called "Samson"; and a 25-ton, geared logging engine named "Shay". Among the 100-plus large exhibits there's a genuine caboose; and a gasoline-powered locomotive.



Butt-end of giant cedar dwarfs young visitor.

"And people seem to love to get aboard the old pump car and let 'er rip down the track," Gerry observes.

In the large log museum there's a slice from the butt of a Douglas fir tree which started its life in 640 A.D. It was felled not too long ago a few miles from the museum site.

"Man and the Forest" is the overall theme of the complex. It's being developed in three distinct stages: the story of the logging industry; the story of forestry; and the manufacture of forest products.

For the forestry story, a 15-acre site has been developed to depict various stages in forest growth and management. It includes a seedling nursery, a seed orchard, various experiments, and a stand of tall timber. The nursery was established last spring, covers an acre, and contains about 200,000 Sitka spruce seedlings. It is maintained by the B.C. Forest Service as a "branch" of its large nursery in Duncan. When the infant trees are strong enough they will be lifted and used in the Forest Service's reforestation program—to provide a new forest in nearby logged-over regions.

Another recent addition is an actual lookout tower, used by the Forest Service in the detection of forest fires. (These towers, too, are fast becoming things of the past as patrol aircraft are being used more extensively in the early detection of fires.)

Forest Serenity

"Here," comments museum founder Gerry Wellburn, as his eyes sweep over the heavily-wooded land, "people can stroll through a century of progress in the logging industry . . . enjoy the serenity of the forest . . . and escape for a while from the hustle and bustle of everyday life."

His thoughts are reflected in a sign which is posted by a wooded pathway. It reads: "Come with us into the forest. Open your eyes, your ears, and your mind . . . for there is more to be learned on this short walk than you or I could comprehend in a lifetime."

How true.

Rangeland Management

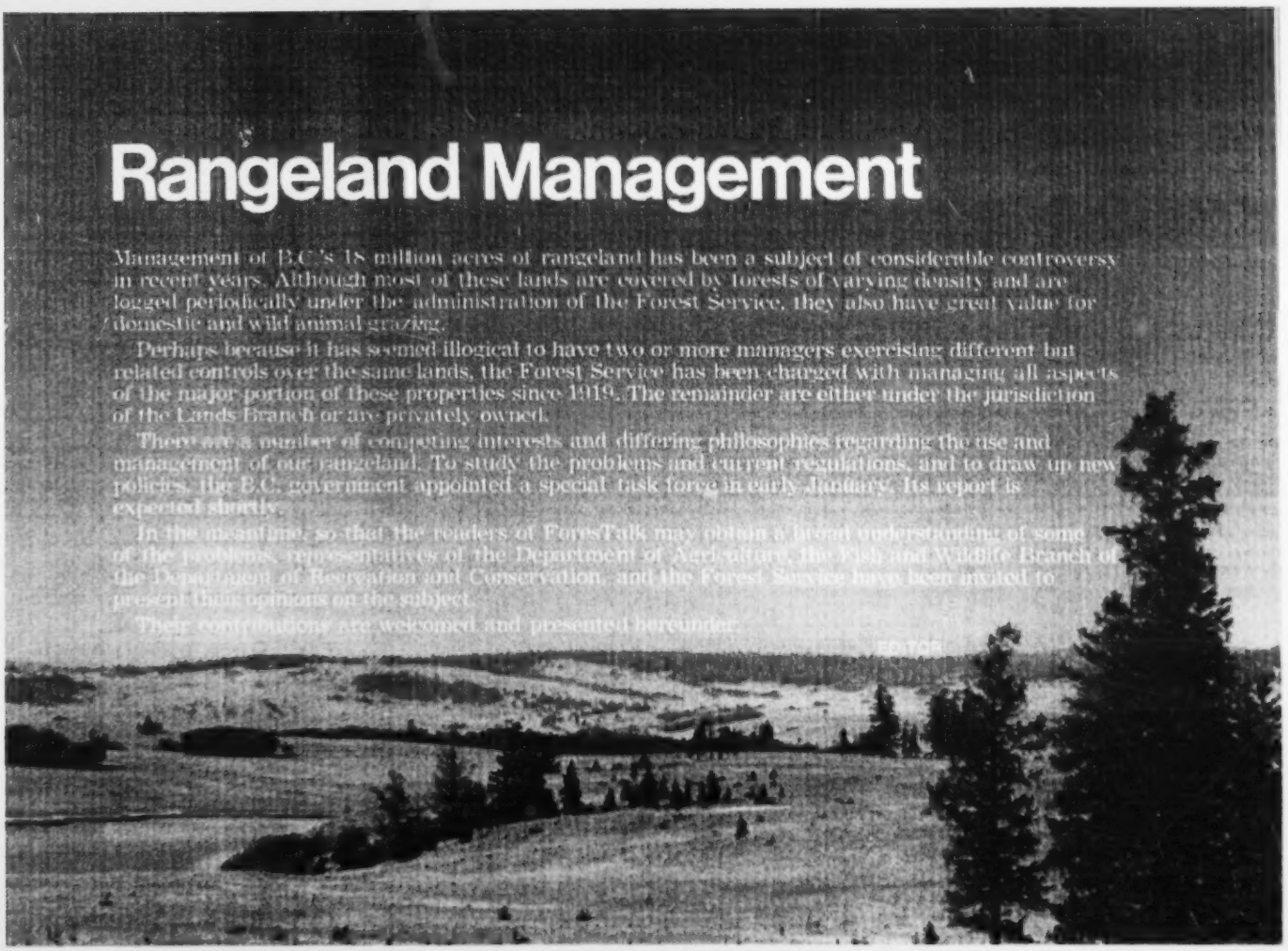
Management of B.C.'s 18 million acres of rangeland has been a subject of considerable controversy in recent years. Although most of these lands are covered by forests of varying density and are logged periodically under the administration of the Forest Service, they also have great value for domestic and wild animal grazing.

Perhaps because it has seemed illogical to have two or more managers exercising different but related controls over the same lands, the Forest Service has been charged with managing all aspects of the major portion of these properties since 1919. The remainder are either under the jurisdiction of the Lands Branch or are privately owned.

There are a number of competing interests and differing philosophies regarding the use and management of our rangeland. To study the problems and current regulations, and to draw up new policies, the B.C. government appointed a special task force in early January. Its report is expected shortly.

In the meantime, so that the readers of ForesTalk may obtain a broad understanding of some of the problems, representatives of the Department of Agriculture, the Fish and Wildlife Branch of the Department of Recreation and Conservation, and the Forest Service have been invited to present their opinions on the subject.

Their contributions are welcomed and presented hereunder.



By A. H. Bawtree P.Ag., Department of Agriculture.

The first white men to visit western North America were impressed with the extensive treeless valleys and plains which produced native grasses and shrubs on which cattle, sheep and horses could be grazed.

The first white men to visit the interior of British Columbia were the fur traders from eastern Canada. They soon recognized the value of the range for feeding horses which were used in large numbers for the transportation of furs and supplies between Fort Alexandria (south of Quesnel) and coastal shipping points. These horses grazed year-round in the dry valleys of the southern interior.

During the Cariboo gold rush (1858-1865) there was an increased demand for horses, mules and oxen to transport miners and supplies to the gold fields. In addition, there was a strong demand for beef which resulted in cattle drives from the United States into B.C. at Osoyoos and through the

Continued on page 14

By E. R. Smith, P.Ag., Forest Service.

Beef on our table is standard fare for some, luxury for others, but whether buying or resisting it, most people take it for granted as an available commodity without wondering where it comes from. Where does it come from? From whose land?

In British Columbia at least 40 million pounds of beef on the hoof are produced annually from that publicly-owned land known as Crown range. Since this quantity would provide about 300,000 people with an average Canadian's annual consumption of beef, the importance of Crown range in providing one of our most essential food items is clearly evident. This meat production generates jobs, commerce and income of importance to our economy. Additionally, through accommodating thousands of horses used by guides and outfitters, Crown range is essential to the hunting, recreation, and travel industries.

On much private land in British

Continued on page 15

By M. L. Beets, Biologist, Fish and Wildlife Branch.

The welfare of our many wildlife species depends entirely on the quality and quantity of their natural habitat.

For too long, wildlife has not been recognized as a user of the land. Logging, mining and ranching all continue on their profitable way, trusting "the people in charge" to protect wildlife through good management. What too few people realize is that you can't just "manage" wildlife.

If British Columbia's native animals are to be allowed their freedom to remain wild, we must manage our other land uses in such a way that important natural habitat is protected. Of particular concern at this time is the abuse of some critical wildlife areas by domestic livestock on public (Crown) land.

Cattle and wildlife can exist together but if wildlife habitat areas are to be maintained, our present system for allowing cattle to graze on Crown land must be looked at closely.

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Perhaps because it has seemed illogical to have two or more managers exercising different but related controls over the same lands, the Forest Service has been charged with managing all aspects of the major portion of these properties since 1910. The remainder are either under the jurisdiction of the Lands Branch or are privately owned.

There are a number of competing interests and different philosophies concerning the use and management of this rangeland. To study the problems and current conditions and to draw up new policies, the B.C. government appointed a special task force in 1975. The report of this task force

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During the Cariboo gold rush (1858-1865) there was an increased demand for horses, mules and oxen to transport miners and supplies to the gold fields. In addition, many ranchers who had settled in the Cariboo resulted in cattle driven from the United States into B.C. at Osoyoos and through the

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The main private land in British

Continued on page 15

By M. L. Beets, Biologist, Fish and Wildlife Branch.

The welfare of our many wildlife species depends entirely on the quality and quantity of their natural habitat.

For too long, wildlife has not been recognized as a part of the land. Logging, mining and ranching all continue with questionable care, trusting "the people in charge" to protect wildlife through good management. What too few people realize is that you can't just manage wildlife.

If British Columbia's native animals are to be allowed their freedom to remain wild, we must manage our areas and uses in such a way that important natural habitat is protected, particular concern at this time is the range of some critical wildlife areas is also suitable for livestock or public recreational use.

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Continued on page 15

Continued from page 13, column 1

Okanagan valley and Kamloops to the gold fields. It was this demand for beef which caused cattle ranching to start in B.C. about 1860.

In this article, "range" refers to those areas where there is forage suitable for use by domestic sheep, horses and cattle. Cattle are presently the chief domestic animals using range. Native wildlife such as deer, elk, bighorn sheep, moose and goats also use range but range suitable for wildlife is frequently quite different than that for domestic livestock.

Ranching Requirements

An abundance of grassland range and a good dependable drinking water supply were the first requirements for a successful ranch. A few winters of deep snow and severe cold made ranchers realize that a hay supply was also required. At first ranchers looked for level areas of fertile land with a high water table where native grasses grew sufficiently high and dense to be cut for hay. More recently much hay has been developed on relatively flat benches and terraces where irrigation water is available by gravity or pumping. Most cattle are now fed hay for two to six months each winter, but good grassland range is still of prime importance in reducing the expensive winter feeding period.

A ranch commonly consists of three types of land tenure: privately owned (deeded) land, leased Crown land and Crown range land.

The ranch buildings and hay lands are usually located on deeded land. The livestock may graze the hay lands in the fall after removal of the hay and they are fed hay in the winter on the deeded land. The remainder of the year they are usually grazing on Crown range. Very few ranches have large acreages of deeded land.

Crown range adjacent to the deeded land is commonly leased from the provincial government. Grazing leases may be issued for periods of up to twenty years. They are required to be fenced and are subject to renewal or cancellation at the discretion of the government. Many ranches do not have grazing leases but in other instances, the acreage of leased land exceeds that of the deeded land.

Crown range is most commonly used under grazing permit issued by the Forest Service. This range is sometimes referred to as "permit range" or "Forestry range" to distinguish it from leased range. Most ranches have annual permits to use Crown range for three to six months. The Forest Service specifies the period of use, numbers of livestock and area over which each rancher may graze his livestock.

Types of Rangeland

Rangelands may be divided into four types. These are: grassland range, forest range, meadow range, and subalpine and alpine range.

The grasslands are characterized by few trees and occupy the valleys and south-facing slopes of the southern interior. Vegetation consists chiefly of grasses and shrubs. This range is best suited to spring, fall and sometimes winter grazing. Most of the grassland range is privately owned or held under grazing lease.

The forest range is characterized by the presence of trees and is the most extensive type in British Columbia. It usually lies at higher elevation than the grassland range where the climate is cooler and wetter. The density of trees has a great influence on the growth and production of grass and shrubs beneath them. The removal of some or all of the trees by logging or fire usually results in an increase of forage. In many parts of the province the natural forest growth is sufficiently dense that there is no forage beneath it. However, temporary range may exist as a result of fire or logging, and permanent range may be obtained by controlling tree reproduction. The forest range is valued for late spring and summer grazing.

Meadow range is mixed with the forest range in the Cariboo and northward. It is characterized by a soil which is wet or flooded at least a part of each year. It is frequently flooded in the spring but may provide an abundance of range in summer, fall and winter. Some meadow range has been converted to highly productive hay land and much more development of meadows is possible for either hay or range.

Sub-alpine and alpine range is found at higher elevations where the climate again restricts tree growth. Alpine range frequently provides a succulent mixture of herbaceous and shrubby growth for about three months in midsummer when range at lower elevations has dried up in the heat.

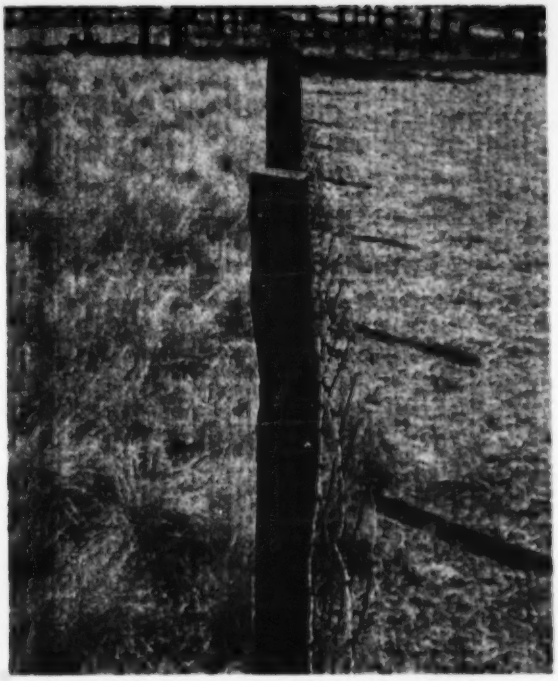
Dependence on Crown Range

The ranching industry is heavily dependent on the use of Crown range. Most ranches in British Columbia obtain 25 to 50 percent of their feed requirements from Crown range administered by the Forest Service. Grazing leases provide an additional significant forage source. The harvesting of a part of the annual forage production on Crown range by beef cattle converts the forage to beef for human use.

Research is being conducted on a continual basis to determine the best management methods for this natural resource because only under proper management will our range lands continue to produce forage indefinitely.

In view of present demands on Crown range for such other uses as growth of timber, water storage, wildlife and recreation, it appears fortunate that this land is under government control. It is now the responsibility of government to ensure that the various uses are co-ordinated and restricted to minimize conflict. The grazing of livestock does not seriously conflict with most of the other demands for use of Crown land. However, recreational and other uses can seriously interfere or prohibit livestock use of Crown range. ▲

Native bunchgrasses grow well on dry interior rangelands and are a favourite food for both domestic and wild animals. However, repeated close cropping will destroy the plants so regu-



lation of domestic grazing to prevent damage and ensure a winter food supply for wild ungulates is an important role of range managers.

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Columbia there is no productive capability other than through forage for livestock. For such land, a complement of forage available on Crown range often provides the only means of developing a viable ranch or farm operation contributing to our needs. The ranching community thus dependent on Crown range involves several thousand people.

Range for wildlife or domestic stock is not just land. There must be water, and accessibility plus a state of productivity in soil and forage. The business of maintaining this complex is range management.

While it is the physical elements and access which determine whether a given acre is range, it is primarily the state of productivity which determines the capability of range on that acre. For example, improper uses of the range,as to season, intensity or type of animal, deteriorate the productivity and may impinge on other resource values or uses. Only through adequate range management can proper range use be ensured to sustain livestock and wildlife, and to protect other resource values.

Much Crown land in British Columbia is capable of several uses, of which forage production is only one. Management of Crown range must therefore be integrated with management of other uses in a manner considerate of each and all of those acceptable uses and users.

History confirms for us in respect to all natural resources that use and development has always preceded management, and intensive management has come along behind only as a measure necessary for conserving the resource . True to that form, domestic use of Crown range expanded earlier and faster than conservative range management. Domestic grazing commenced over 100 years ago and for the first half century there was no governmental control . However, this has gradually given way to a regulative phase in which management concepts are gaining emphasis. Abusive consequences of past unregulated grazing have been progressively checked over the past 30 years and all Crown range is now subject to an increasing intensity of management toward ensuring proper non-conflictory use.

All use of natural resources, without exception, changes our environment in some degree. Since change of the resource upon using it is inevitable, the rational resource manager acknowledges that his role is to curb the change within acceptable limits while enabling essential uses. With use and development of Crown land for necessary food production, change in the range resource has occurred and in some ways must continue. In fact, it would not be realistic to expect productive grazing on Crown range without some modification to the basic resource.

Where applied with adequate intensity, the science and techniques of range management are capable of governing the change within acceptable limits. If range management is accorded the recognition, staff and opportunity it warrants, the Crown range can unquestionably be relied upon to increase substantially its contribution to the economic and social welfare of B.C.

Realism on food needs indicates that mankind requires all protein sources we can tap. Beef from Crown range, like moose, deer or elk, is one such source. Further, as a sidelight on the developing energy crisis it is notable that beef production from range forage uses cheap solar energy and little of our dwindling fossil fuels.

We cannot afford to waste a substantial part of the annually renewable Crown forage resource by either non-use or abuse, especially when it is possible to accommodate domestic grazing compatibly. ▲

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Alpine Exclusively for Wildlife

Multiple land use is ideally the goal of our management agencies. However, in the case of certain alpine areas, multiple use is damaging to wildlife. Generally, above the five thousand-foot-level the soil is thin, the growing season is short, and the plants are fragile. Unless cattle are excluded from these important wildlife summer range areas, extensive and sometimes permanent damage will be done to what little forage is available. We should also maintain the alpine for its scenic and recreational benefits.

Vegetation Analysis

The method used to determine how much grass is available for cattle to eat has been an "eye-ball and estimate" approach. This simply means that without adequate measurements, counts or experiment, too much reliance is placed on rule of thumb. With the scientific methods we have at our disposal and with professional agrologists (grassland managers) already working for the government, this is not good enough. Proper vegetation analysis is relatively simple and should be the basic step toward a more scientific approach for managing Crown ranges.

Fall Grazing

In addition to numbers of cattle on a particular range, the time of year is important. For example, fall grazing on important big game winter ranges is probably one of the most detrimental grazing practices now being permitted because without good winter ranges, wildlife can't survive. Grass is less nutritious in the fall and often unpalatable so cattle turn to more appealing browse plants such as willow, aspen, Saskatoon bush and red-osier which are the mainstay of the winter diet for many wildlife species.

Land Inventory

Co-operation among government agencies could produce range inventory maps detailing which areas have been over-grazed, what lands provide summer or winter forage and what areas could be put into better production. Although some steps have been taken in this direction, it is essential to take all land and land uses into consideration, consider capabilities, then assign priorities where necessary. The Fish and Wildlife Branch should be consulted on all decisions which could affect wildlife.

Enforcement

Obviously it won't do any good to issue fewer grazing permits unless the permit specifications are to be enforced. At present no one knows how many cattle are actually grazing on public land because little attempt has been made to enforce the conditions of range permits. Such enforcement is absolutely essential even though it will require increased manpower. The grazing lease system should be entirely replaced by "forage only" permits, thus allowing the government to maintain control over the use of Crown land. Another aspect of field enforcement concerns the distribution of livestock. Proper placement of salt in relation to water sources, and riders to keep cattle moving could prevent abuse and improve range conditions.

Agriculture Land Reserves

So far these suggestions may appear negative—fewer cattle on Crown ranges and strict enforcement. What will make up the loss to the rancher? The answer has to be more intensive management.

Now that the government is setting aside Agriculture Land Reserves, a whole new concept can begin to take form. Instead of allowing cattle to over-graze valuable public land, it would benefit both cattle and wildlife far more if ranchers were encouraged to put their own land into greater forage production. If the ranching industry could depend more heavily on irrigated pasture and hay, the pressures for use of Crown range could decrease drastically, thus reducing the competition between cattle and wildlife.

With better management on the part of government agencies and ranchers it is entirely possible that our Crown ranges may produce even more wildlife and cattle in the future. However, to bring this about, changes and sacrifices must be made. ▲

Sub-alpine and alpine range provides succulent grazing in mid-summer.

"Good Seed Does Not Cost, It Pays"

By Alan L. Orr-Ewing

Trees with inferior genetic qualities of growth and form (1) produce inferior offspring (3).

This maxim which was carved over a gateway leading to a tree improvement centre in Sweden was noticed by the writer some years ago and seems a particularly appropriate title for this article.

Most people are aware of the worldwide influence which genetics, the branch of biology dealing with heredity and environment, has had on such fields as agriculture and horticulture. Grain and fruit for example, are not the products of undomesticated or wild plants but have evolved from varieties which have been vastly improved over the years by careful selection and breeding.

Similar improvement could be made in most tree species where there is sufficient range and variation for selection. Forest trees, however, are probably the last remaining crops on which little or no genetic improvement has been made. With a few notable exceptions large amounts of seed are still being collected from wild stands. This is particularly applicable to British Columbia where there has been a seemingly inexhaustible supply of timber. As long as these supplies have remained there has been little or no incentive for tree improvement programs. Since no forests are inexhaustible it might indeed be asked what the future situation in the lumber industry will be once they are cut and replaced with natural and artificial regeneration.

The forester does not have the same control over natural regeneration as with artificial regeneration which entails reforestation by either seeding or planting. In the latter case he can do a great deal to ensure that the next crop of trees will not only be at least as good as the previous one but that it will have real possibilities of being a great deal better. However, although considerable advances have been made in increasing production of seedlings in the nurseries and in establishing plantations, little comparable progress has been made in improving the quality of the seed used for reforestation in this province.

Trees with superior genetic qualities of growth and form (2) produce superior offspring (4).

One Way of Improving Seed

Reforestation was initiated in 1931 and by 1972, 41 years later, more than 415 million seedlings had been planted on some 913,755 acres in the province. At the most liberal estimate, at least 95 percent of these seedlings originated from seed collected from wild stands with little or no selection standards. Further, there are now 39,477 pounds of seed in storage from various species which will eventually be used in reforestation projects. At the most liberal estimate again, 95 percent of this seed is from wild stands. The cost of collecting is small compared with that of improved seed but it is just as expensive to raise and plant seedlings of mediocre genetic quality as those from improved seed. Moreover, the additional costs of collecting the better seed will be more than repaid over the life of a plantation.

It may be questioned as to what evidence does exist that the quality of the seed and subsequent seedlings can be raised by collecting from only the better formed and more vigorous trees in wild stands. Photographs 1 and 2 show two 26-year-old Douglas fir growing within a few hundred yards of each other in a typical wild stand. These two trees were selected because of their markedly different forms, and cones were collected from each in 1954, the same year in which the the photographs were taken. Their 19-year-old offspring are shown in photographs 3 and 4 and it is obvious that the tree in photograph 2 produces much better offspring (photograph 4). Evidence that it is good reforestation practice to collect seed from only the better trees in wild stands is therefore not new.

Research Programs Initiated

Some progress has been made toward obtaining seed of improved quality as several research programs with various species have been initiated. These are on a small scale but show considerable promise. Such programs, however, cannot hope to increase the amount of improved seed for some time even if expanded. At the present time, therefore, simpler methods which can be implemented without either delay or high costs have to be used.

One method has been to select young stands which are producing cones and then remove all trees with undesirable form and poor growth leaving only the best from which to collect cones. Such improved stands are known as seed production areas.

Their main advantages are that they are relatively cheap to establish, and yield seed of known origin with some improvement in quality. Further, less supervision is required when the cones are collected. There are now 53 seed production areas in the province which have been established by the Forest Service and Industry. These stands have yielded 2,500 pounds of seed to date, most of which is from coastal Douglas fir.

In a more advanced stage of seed improvement, selection programs by the Forest Service, forest industry and the University of British Columbia have been started for five timber species on the coast and interior of the province. Some 1,000 "plus" trees have already been selected and these are being propagated by grafting so that their inherent qualities can be preserved. Such propagation centres are known as clone banks and the clones of the selected trees are used for future crossing and seed orchards. The latter are plantations formed from either grafts or seedlings from crosses between "plus" trees and are cultivated intensively for early and abundant production of improved seed. There are now 50 clone banks and seed orchards in the province but production from the seed orchards has been negligible to date.

Such progress should, however, be compared with that of Finland which has only 53.4 million acres of forest land compared with the 134 million acres in this province. The Finnish program which began only nine years prior to the first one in this province already includes 5000 "plus" trees and 281 clone banks and seed orchards. Improved seed is already being used on a large scale in that country and every effort is being made to increase its production for reforestation.

Better Training for Cone Collectors

There are plans for considerable expansion in seed improvement throughout the province but it is quite evident that for the next decade at least a high percentage of the seed collected will have to come from wild stands composed of trees of variable quality.

It is taken for granted that the former practice of buying cones collected without supervision has been permanently discontinued and that all collections are supervised. These supervisors, however, have wide responsibilities and much depends on both the thoroughness of their field training and their ability to pass this on to the collectors themselves. It is not enough to simply know when the cones are mature, whether cone samples justify picking and how to make out the appropriate forms for collections. One tree looks just like another to many people and it takes time and training in wild stands to appreciate that there are important differences between trees in form, growth, and branching characteristics.

Photographs 5 and 6, for example show wide differences in stem straightness and branching characteristics between two trees in the same wild stand. Cones should on no account be collected from the tree in photograph 5 as the undesirable crookedness of both stem and branches will likely be inherited by the offspring. Cones again, should never be collected from either solitary or small isolated groups of trees where there is a chance that there has not been adequate cross-pollination from other trees. There is a real risk of inbreeding in such cases. This occurs when the female cones are fertilized by the male pollen of the same or related trees which can result in either empty seeds or deformed seedlings.

Further, in a year of heavy cone production when the collector's pay is dependent upon the number of cones gathered, it is physically impossible for a supervisor to ensure that only cones from certain trees are collected. Trees with bad form and growth should at least be marked, or even better, cut out before collecting begins. These few examples should emphasize the urgent need for an expanded training program over the next decade and for an even longer period.

The Role of Research

In conclusion, one can only add that the possibilities for greatly improving the growth of the present plantations through research are very real. Photograph 7 is an aerial picture of an experimental area planted with two-year-old Douglas fir seedlings in 1966. These crosses of known parentage are being tested over a 15-year period. No preferential treatment has been given after planting but the survival and growth of even the poorest cross are in marked contrast to the surrounding trees which were planted the same year. The latter originated from unimproved seed collected in wild stands. ▲

Experimental plantation established in 1966 by Research Division of the B.C. Forest Service and grown from selected seed shows improved growth and survival compared with the surrounding normal plantation grown from unimproved seed which was planted at the same time.

The author with trees from improved seed in the background.

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